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FINTECH – A STEP AHEAD OR A FORCE OF CREATIVE DESTRUCTION IN FINANCE

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Abstract

The purpose of the article/hypothesis. This article aims to introduce the concept of creative destruction in relation to transformative solutions in finance based on the example of FinTech and innovative technologies with special emphasis on blockchain and cloud computing. As a means to reach its objective this paper analyzes in depth the concept of creative destruction originated by Schumpeter in 1940s and translates it to modern business financial environment to present the reader with double-sided effects of introduced changes, their unique and unprecedented character both from the perspective of FinTech and traditional financials intermediares.
Methodology. In order to research the effects of innovations on the financial markets the critical study of the foreign literature will be conducted.
Results of the research. The conducted considerations displayed a parallel between innovations introduced by FinTech and actions undertaken by traditional financial institutions in order to remain strong players on the financial market. Even though solutions provided by start-ups may debilitate gained trust, which is one of the fundamental cores of finance, and raise questions related to breach of established regulations, they support the market with increased efficiency and variability of products and services. However, it can be easily perceived that advantages of introduced solutions outweigh possible dangers, and financial intermediaries, especially banks, decide to operate on the basis of the enagament model that supposes a synergy with start-up to blend favourable aspects of both of them including banks' well-established repute and trust along with FinTech's innovative potential.

Keywords: creative destruction, innovation, fintech, blockchain, cloud computing.

JEL Class: G21, G23, L86.

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INTRODUCTION

Innovations are impelling force of the modernization present in all industries. Finance is no exception here as it implements multiple and diversified innovations in transactions, available products and customer-related services in terms of production, specification, storage and distribution of data (Rosati and Cuk, 2019: 150; Gupta and Tham, 2019: 5). During the analysis of any form or aspect of these transformative changes both their advantages and disadvantages are presented, however, there is a deficit of particular considerations whether these innovations are step ahead or are a manifestation of creative destruction.Taking into consideration the theoretical concept of creative destruction the modernization in finance arose mainly due to implementation of transformative technologies by the means of FinTech leading to reciprocal effects that both nurture and harm certain areas of business. It is therefore, worthwhile to consider these effects from the perspective of traditional financial institutions and financial start-ups. The purpose of this article is to show the relationships between innovative solutions introduced by FinTech and activities undertaken by financial intermediaries in the context of considerations on the nature of fintech as a step ahead or a force of creative destruction in finance. In order to achieve the purpose of this article a critical analysis of literature will be carried out, mainly based on scientific articles, research results, reports containing data and opinions on the topic of innovation in the sphere of finance.

1. CONCEPT OF CREATIVE DESTRUCTION AND INNOVATION

Change is an inherent part of the industry, its driving force, and is multidimensional. The change may concern customer behavioral patterns, services, products, or the general economy of the country (PWC, 2016: 3). Many of these factors cannot be influenced by the company operating on the market, the only controllable action is to implement the change from within.

In 1951, Austrian economist Joseph Schumpeter, in his search for the cause of development in economics, aptly described the concept of creative destruction as a „process by which new technologies and products are designed and brought to market, gaining for their owners and promoters success while replacing old technologies and old products" (Ricci, 2020: 51). Although the concept was coined and popularized by Schumpeter, who based his idea on the concept of Karl Marx. Marx presented capitalism „as a progressive social and economic force that would demolish the stifling practices of feudalism", but also has seen its downsides as he noticed that „capitalism was not a flawless society but one that imposed severe social, economic, and emotional costs upon many of its citizens"

(Ricci, 2020: 58). The difference between opinions of these men was quite significant, as Marx thought of labor as a basis of economic value and proletariat as a change, while Schumpeter presented innovation as a driving force in the economy (NYTimes). According to Schumpeter „by development, therefore, we shall understand only such changes in economic life as are not forced upon it from without but arise by its own initiative, from within" (Schumpeter, 1983). Schumpeter states that the main variable of capitalism is innovation and the right person who will introduce it – the entrepreneur (NYTimes).

Innovation is „in our sense is then defined by the carrying out of new combinations", which can be as follows: 1) the introduction of a new good, 2) the introduction of a new method of production, 3) the opening of a new market, 4) the conquest of a new source of supply of raw materials or half-manufactured goods or 5) the carrying out of the new organization of any industry (Schumpeter, 1983). Innovation can be seen as a 3-stage process constituted by the invention, innovation, and diffusion (Lockwood and Lent, 2010: 15). In the invention stage, an idea arises and is presented. During innovation, the concept is being applied for the first time and in diffusion, a product is launched and distributed over the market. The fundamental of it is that new technologies, new products, new processes are taking over the obsolete ones. This concept has been adopted by many economists to explain an enormous economic growth starting in the 1950s and according to some of them (NYTimes) if creative destruction worked by itself and caused no or little inflation, it would be very profitable to invest in shares of companies and government interference in the market should be minimized, even though it would mean job loss and closings of operating companies. All these actions are explained by the self-interest of the entrepreneurs and their need to perform better than others. However, not every creative innovation always brings positive changes. A common denominator of the definitions of creative destruction is that creative innovation allows one to proliferate, whereas for others it is a source of destruction therefore, it is essential to note that „the invention of new products, processes, and services displaces old ones, rendering skills, knowledge and capital equipment obsolete in old industries. Innovation raises productivity and growth, but it also creates winners and losers" (Lockwood and Lent, 2010: 15).

Creative destruction is often treated by economics, psychologists, and sociologists as a miraculous process of growth, whilst a lot of them do not keep in mind negative effects of it such as gig employment, silo media, global warming, habitat destruction, social envy, community deterioration, smartphone addiction and more (Ricci, 2020: 55). The phenomena of creative destruction is a countinouos process present among various industries including health care (Coughlin, 2006: 1), energy sector (Xavier-Bender, 2014:1), telecommunications equipment sector (Olley and Pakes, 1996: 1263) where it

has arisen mainly due to two factors: technological change which bolted the upshot of new products and slackening of binding rules across these industries, but as for the purpose of this article next chapters will shed a light on creative destruction, or as referred to by others destructive creation, in financial sector.

2. ACCELERATED GROWTH IN GDP AND PRODUCTIVITY SINCE 1950S

Before discussing the concept of constructive destruction in finance, it is justified to present an overview of this theory in all industries as finance is directly and closely related to all branches of the economy.

At the beginning of the last century, and especially since the 1950s, certain innovations have contributed to the development of the economy and increased productivity, but some of them have also become a source of uncertainty and fluctuations in the market. In the graph below (Figure 1) it can be observed that since the 1950s GDP per capita has been growing mainly due to new technological solutions that translate into increased efficiency. However, there are also periods of decline in GDP, most of which were caused by market instability. The decline in GDP per capita in 2020 is the result of the global situation related to the spread of COVID-19.

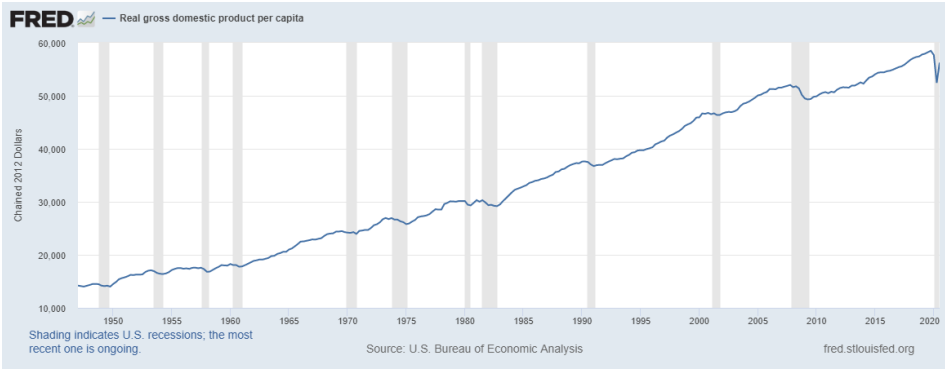

Figure 1. Real gross domestic product per capita in United States from 1947 to 2020

Source: Federal Reserve Bank of St. Louis, Real gross domestic product per capita, FRED economic data.

One of the likely long-term effects of the global pandemic will be „a possible retraction of value chains and reduced efficiency due to lower creative destruction and labor hoarding" and also if entrepreneurs do not adapt to new competitive market conditions, „many ventures will either disappear or join the rapidly

swelling ranks of zombie companies" (OECD). Given the constantly evolving epidemic, the public health sector remains a priority for many countries, but many governments are also trying to minimize the economic impact of the pandemic, especially in the case of SMEs. The solutions undertaken include: 1) shortening of working time, temporary lay-off and sick leave, 2) deferral of tax, social security payments, debt payments and rent and utility payments, 3) extension or simplification of the provision of loan guarantees, to enable commercial banks to expand lending to SMEs, 4) introduction of direct lending to SMEs through public institutions, 5) provision of grants and subsidies (OECD).

3. DIGITALIZATION OF FINANCE

In the previous chapter it was stated that GDP per capita and productivity has increased over last 70 years across all industries mainly due to technological innovations, which allows to replace old technologies and processes as well as to ensure success for their owners and promoters, but how exactly did this shift occur in finance?

The goal of any venture is usually to make a profit, and for this to happen, money is needed. The financial sector enables saving and investing, provides protection, and supports development (Rosati and Cuk, 2019: 150). Money is becoming more often only the information sent by subsequent servers, and not a material commodity. There were five events that were revolutionary for the financial sector in the 50-year period 1950–2000 and allowed to promote this innovative shift: „computerized information systems in the 1950s, automatic teller machines (ATMs) in 1960s, electronic stock trading in 1970s, mainframe computers in 1980s, and the Internet in the 1990s/early 2000s" (Rosati and Cuk, 2019: 150). Another source states that two transformative innovations which took place in the 20th century were as follows: the growth of mass consumerism since the 1910s and computer-controlled production since the 1960s/1970s, and now the financial sector is undergoing a new transformation that started in the 21st century, the spread of highly interactive web technologies and mobile marketing (Lockwood and Lent, 2010: 6). All these revolutions may be perceived as innovations by some, and as destruction by others.

The last 20 years have been groundbreaking for the development of finance. With the oncoming of Industry 4.0: blockchain, Internet of Things, Robotics, Artificial Intelligence, the opportunities for business growth have become countless. Traditional barriers to entry, physical infrastructure, and face-to-face transactions have been reinvented into digital mode. New digital business models have entered into force in various branches of finance: fintech, insurtech, legaltech, regtech. Virtual finance has also become important outside the

traditional financial market in the online area as it benefits both the financial system, its customers, and society. The World Bank lists the following advantages of digitalization of finance: it promotes financial inclusion as it, as estimated, provides access to financial services to 80% of excluded financially poor adults; it can increase efficiency through automatization and reduction of administrative burden; and spurs financial innovation by adaptation of new technologies such as blockchain or big data (The World Bank, 2016: 94–97).

Despite the fact that fintech usually promotes financial inclusion, certain groups of recipients may be left behind many financial innovations due to lack of capacity or ability to use high-speed internet and mobile devices (Perkins et al., 2020: 2). Fintech offers financial services that replace those offered in the traditional way by banks, from loans to payments to investment management. The advantage of this sector is its direct proximity to the customer through means of online platform working 24/7, providing answers to customer demands in robo talk. Many companies operating in this way do not have physical service points, therefore, they significantly reduce their costs and are able to reduce the fees charged by customers, which puts them in a competitive position towards the banks.

Although fintech still represents a small part of the financial market, the pace of its development in recent years may be used as a forecast for the growth of this trend in the future (Perkins et al., 2020: 15). In 2016 fintech compromised only 1% of the financial market, whereas in 2023 is predicted to compose 17% due to growing demand younger audience, especially of millenials, and their preference to use mobile as a mean of communication with bank (Rojas, 2016: 7; PWC, 2016: 8). The pace of change is accelerating from year to year. Already in 2014, Fintech has obtained $ 12 billion in investments, which represented 300% of funding gathered in the previous year (Markowich, 2016), and in 2015 the investments in fintech raised to a record amount of $19 billion (Rojas, 2016: 7). At the end of 2017, there were 12,000 fintech companies in the world that received over $ 130 trillion of equity funding (Gupta and Tham, 2019: 21).

Undoubtedly, the financial sector has undergone a major conversion in recent years, and new, innovative solutions began to appear on the market, attracting customers and investors. In order to indicate reasons, and most importantly technologies, which led to this change, it is necessary to define what fintech is. There exist various versions of definitions around fintech, and therefore, this term has an ambiguous meaning. Term ‘fintech’ is a conjunction of the words ‘finance’ and ‘technology’. Gupta and Tham (2019: 9) wrote that fintech „is a word often used to describe almost any kind of startup that uses some level of technology to create a financial product or service”. It may also be described as „a combination of technology and financial services that is transforming the way financial businesses operate, collaborate, and transact with their customers, their regulators,

and others in the industry" (PWC, 2019: 3). Congressional Research Service defines fintech as a broad set of technologies being deployed across a variety of financial industries and activities', however, it is not explicitly stated which technologies are used in financial services (Perkins et al., 2020: 1). Hence for the purpose of this article the following definition of fintech may be applied, a fintech is technology-driven company operating in the sector of financial services.

There are two types of fintech: tech-enabled and tech-powered (Gupta and Tham, 2019: 9). The tech-enabled fintech cooperates together with existing financial institutions to improve the efficiency and quality of services and processes. The tech-powered creates innovative solutions for the narrow area of finance in order to creatively disrupt the competition.

As it has been stated before, there is not a specific set of technological tools that is applicable solely for fintech purposes. It is still possible to determine which technological developments most of the fintech use for its proliferation. Industry 4.0 has created a new environment for almost all branches of business, and finance especially, both at the overall level of a company and implementing changes for various subdivisions. Financial institutions are often interchangeably called financial intermediaries, as they operate as a middleman of an industry, especially now when their role is limited to advise on assets, rather than producing real ones. This change occurred due to technological impact on business: automatization of work with the use of machines and algorithms, lowering the cost of acquisition of information and reducing supply chain (Gupta and Tham, 2019: 3).

The technologies that are the most prominent in financial start-ups are as follows: amplification of internet access and mobile technology, big data, alternative data, automated decision making and artificial intelligence, cloud computing, concurrency of cyber threats and cyber security (Perkins et al., 2020: 2–10). There is a question whether the future may bring any more technological advancements to financial services. In Global Fintech Report 2019 it was indicated that in next years the most transformative technologies in fintech area will be: Internet of Things (IoT), Artificial Intelligence, 5G, cloud, big data, blockchain, robotic process automation, voice technology (with natural language processing) and biometrics identification (PWC, 2019: 6). The use of these technologies together creates a unique environment where processes become automated, resulting in increased productivity and efficiency.

In CRS Report, three advantages have been assigned to fintech: 1) cost reduction, which will allow previously excluded social groups, such as low-income, minority, and rural populations, to access financial services; 2) reducing the asymmetry of information through constant and easier access to data, 3) access to reach customers, previously restricted by geographic remoteness or unfamiliarity with products and services (Perkins et al., 2020: 1). In the context of the advantages for customers of digitization of finances, the factors such as

personal digital contact, personalized service, trust, faster service and processes, ease of use, cost advantage, customer-friendly interface and 24/7 accessibility are mentioned (PWC, 2019: 11).

At the same time, attention must be paid to the risks that arise with the increased use of technology, so that companies and lawmakers can alleviate or handle possible negative outcomes and maintain market stability and access to financial services. It is difficult to predict exactly how the current intense impact of technology will affect the banking sector, but certain assumptions can be made based on the experience of another sector – technology, media and telecommunications (TMT) companies – which has been using new solutions for a long time (PWC, 2019: 3). Much of investment funds powered by fintech operates solely on the basis of data analytics, predicting market trend and allocating funds, and artificial intelligence for customer-related operations. Perkins et al. (2020: 1) indicates that it may prove fatal due to the probable lack of precision of the technologies used, which may lead to financial damage and the lack of robo chats skills to explain and educate customers on financial products and their risks.

4. VALUE OF FINTECH PRODUCTS

To understand the success of fintech, one should not only look for the cause in the financial crisis and the loss of confidence for traditional forms of financial institutions (Arjunwadkar, 2018: 187) but also procure to look at how they create value for the user.

The value of the product is determined on the basis of quality, offers selection, and customer evaluation, the customer determines how much they are able to pay for a given product, stating their willingness-to-pay, then the value can be calculated by subtracting the cost of producing a product from the customer's willingness-to-pay (Markowich, 2016). Fintech provides the following value proposition: 1) it offers access through various channels and facile to navigate interfaces that allow for simple and quick service, 2) it provides cheaper operations, 3) has tools that allow to personalize service to customer needs and protect from fraud, 4) uses technology to increase transparency in banking sector (Rojas, 2016: 14). Another aspect that creates value for fintech users, and propels process of creative destruction, is disintermediation of financial services it offers, as its biggest growth can be visible in consumer banking and payments where more and more individual users fall into a demograpic category that used technology in every area of their life and adaptation of finance to IT standards seems for them a natural step in banks' evolutions (PWC, 2016: 6).

CRS Report presents the most important technological innovations in finance were undertaken in spheres of lending, the relationship between banks and third-party vendors, consumer electronic payments, real-time payments, cryptocurrency, capital formation through crowdfunding and ICOs, high-frequency securities and derivatives trading, and risk management and regtech (Perkins et al., 2020: 14). However, Rojas (2016: 7) indicates that, as for 2016, fintech was mostly focused in just three areas of finance: loans, payments and management of private wealth, however, it also operated in capital formation, insurance, online banking, which indicates accelerating growth of financial start-ups.

Fintech companies and banks offer the range of similar services and products, but in fintech „differently from banks, the information they use is based on big data not on long term relationships; access to services is only decentralized through internet platforms; risk and maturity transformation is not carried out; lenders and borrowers or investors and investment opportunities are matched directly" (Navaretti et al., 2018: 10). Financial start-ups create innovative products within areas that are traditionally occupied by financial intermediaries. In the graphics below (Figure 2) types of innovations introduced by fintech are presented.

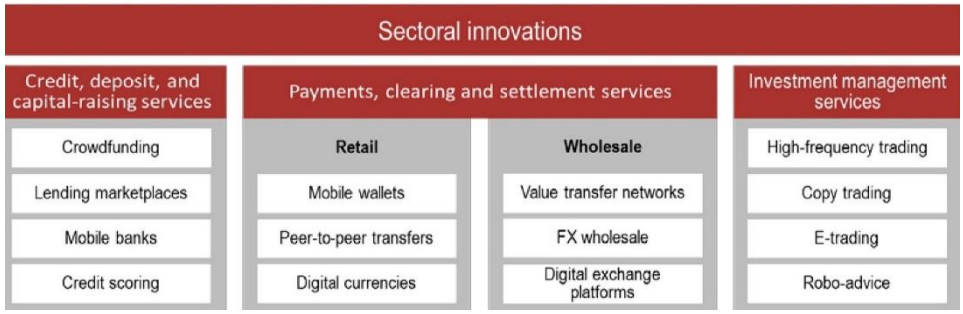

Figure 2. Sectoral innovation in finance provided by fintech

Source: BCBS, 2018: 9.

These sectoral innovations would not be possible without technological advancements implemented by fintech companies. Development Bank of Latin America indicates the most important IT innovative tools used by fintech include: cloud computing, blockchain, big data, artificial intelligence and social media (Rojas, 2016: 11), however, both cloud computing and blockchain are the ones that are most often mentioned as transformative ones (INGWB.com; Gupta and Tham, 2019: 105; Rosati and Cuk, 2019:149, 163).

5. CLOUD COMPUTING AND BLOCKCHAIN AS TRANSFORMATIVE AND INNOVATIVE TECHNOLOGIES

Cloud computing is used on a daily basis by both traditional financial institutions, such as banks, insurers and securities firms, and also it is a tool widely spread by fintech (Perkins et al., 2020: 11). European Banking Federation defines cloud computing as a solution that 'offers banks the flexibility to tailor the scaling up of capacity to meet their activity levels' (EBF, 2020: 5). It is a technology that enables accessibility. It consists of sharing information stored in the remote computer database via the Internet network. „Cloud computing users transfer their information from a resource (e.g., hard drives, servers, and networks) that they own to one that they lease" and reduce costs related to developing technical resources and maintaining staff needed to operate them (Perkins et al., 2020: 10). It is assumed that there were four reasons which allowed the expansion of cloud computing: 1) increase in network transmission speeds, 2) low cost yet compact hardware, 3) service-oriented architecture, and 4) increased automation in deployment processes (Arjunwadkar, 2018: 137). It significantly lowered the costs of storing information, renting the space needed and hiring employees. Computing costs have also been reduced because many tools enabling automatic data analysis are directly embedded in the cloud. European banks in order to stay competitive on the market are employing tools of cloud computing to increase opportunities for specialization and customer attraction, as they see the advantages of cloud and ICT advancements which allows for increased flexibility, immediate response to customer demand, dynamic cost management with the possibility of the detailed forecast, decreasing the capital adequacy ratio cutting-edge security solution (EFB, 2020: 11).

Blockchain was originally created in the 1990s in order to timestamp their documents in a digital manner without having to back-date them or giving other users the opportunity to tamper with them, but it has not really flourished till 2008, when Satoshi Nakamoto reinvented it, and as for today it is meant to be the heart of creative destruction, which in addition to increasing the efficiency of operations, generates savings of $16–20 billion annually within financial sector (Rosati and Cuk, 2019: 110). It is a distributed trust mechanism on which the existence of bitcoin and digital currencies is based and therefore, allows it to keep track of transactions (Schwab, 2016: 143). Others define it as „the technology behind the most well-known cryptocurrency, bitcoin [...] is a decentralized payment scheme that does not require a single trusted third party to validate transactions" (Lorente and Schumkler, 2018: 2). ING states that „decentralised systems, such as the blockchain protocol, threaten to disintermediate almost every process in financial services", which as mentioned earlier is one of the reasons for creative destruction in finance (INGWB.com; PWC, 2016: 6). Blockchain

technology has contributed to simplification and shortening of distributed transactions with special emphasis on cross-border transactions, and it led to emergence of many fintech companies specializing in this matter (Arjunwadkar, 2018: 189).

The two types of transactions of the highest importance in banking are interbank and cross-border transactions. These are complicated and time-consuming processes, requiring cooperation between institutions, which elongates the transaction time and thus creates additional costs for contractors and banks and accounts for unwanted delays. Cross-border payments in the first quarter of 2017 accounted for 20% of all payments, and contributed 50% of profits (Rosati and Cuk, 2019: 155). However, despite this, almost half of the money transferred is drowned in transaction costs, which creates no incentive for customers. In interbank and cross-border payments, the price is high. In addition to this rather high transaction costs, one has to take a risk of fluctuations in the exchange rate. As the transactions are not instantaneous, there is a high risk that the currency price will change. To overcome these obstacles, banks are starting to use blockchain technology, which enables faster transactions, runs continuously and lowers transaction costs, which creates additional value for the customer. Remittance faces a similar problem as in the case of cross-border payments. In 2017, international remittance was $ 585 billion, of which 7.32% was absorbed by transaction fees (Rosati and Cuk, 2019: 155) therefore, it is urgent to investigate how expenses in these transactions can be kept down, and blockchain technology seems to be one of the solutions.

One issue that raises disputes in the case of blockchain is data security. On the one hand, through data analytics, it is possible to assess the risk and adjust the product or service to the individual needs of the client, on the other hand, it is controversial with regard to the privacy of personal data (Perkins et al., 2020: 2). The new law on European General Data Protection requires the customer's consent to use their private data, which makes companies decide to use private blockchain networks, which are 51% more exposed to the risk of attack than the public network (Rosati and Cuk, 2019: 154). Nevertheless the blockchain raises in power in financial services as it facilitates back-office processes and increases transparency of data available to auditors and provides a platform for „smart contracts" which are embedded into computer software and can be self-executing through communication between blockchain nodes (PWC, 2016: 17). The solutions provided by blockchain to finance industry are among others (beside facilitation of cross-border and interbank transactions): self-validation of receiveables and payables, intercompany accounting, revenue cycle management, trade finance, fraud and risk detection, peer-to-peer transactions and lending, POS systems, digital wallets and automated investing (Deloitte, 2018: 13; Monem, 2019: 13; Arjunwadkar, 2018: 35–113).

Cloud computing increases the flexibility of meeting the expectations of demand side (EBF, 2020: 5), reduces costs related to storage of information and computing of data (Perkins et al., 2020: 10; Arjunwadkar, 2018: 137) and provides an immediate response to dynamic relationship with clients (EBF, 2020: 11), while blockchain increases the efficiency of internal and external processes of companies, generates savings, simplifies transactions (Arjunwadkar, 2018: 189) and allows a global expansion of financial services as it allows to overcome current issues related to interbank and cross-border transactions. Both technologies make finance more accessible as it did in case of Kenya's M-Pesa, but they also display certain common disadvantages. There are data security and trust breach issues that are a source of worries for clients as well as for the financial companies, moreover, both technologies exclude people without technological knowledge or access to Internet (Perkins et al., 2020: 2).

Given these facts it can be concluded that through these transformative fintech provides value for users, but also for financial intermediaries with which it cooperates, as it improves financial inclusion, enhances customer experience, increases transparency, provides more effective security and compliance and supports its users with guidance (KPMG, 2017: 7).

6. SYNERGIES IN FINANCIAL SERVICES

Fintech offers products and services which are „designed and brought to market, gaining for their owners and promoters success while replacing old technologies and old products" (Ricci, 2020: 51) which are offered traditionally by financial instututions. However, it is changing as more of tech-enabled fintech enter the market. One of the senior executives at a global banking organization once said „We thought we knew our customers, but FinTechs really know our customers" (PWC, 2016: 3). Banks and other financial institutions are deeply aware of the value proposition created by ICT and possible danger of staying behind financial start-ups, thus they are transforming their services into more digitized and innovative, and often seek for solution to this destructive process with the employment of an engagement model, which is based on the cooperation. The table below (Figure 3) presents models of tech-enabled fintech which cooperate jointly with existing financial institutions to improve the efficiency and quality of services and processes (Gupta and Tham, 2019: 9).

Engagement models	Purpose	Example
Direct Clients	develop new technology services	Citi Aysadi
White Label	reach new products and markets	ADIB Fidor Bank
Partnership	provide value-added services to existing clients and allows to reach previously restricted customer segments	FIDJI Project is a partnership between 35 european commercial banks and insurance companies (BNP Paribas, Credit Agricola SA, Societe Generale, Groupe Generali France) which jointly are rethinking the business model and industry image.
Co-creation	shape and launch new products	BBVA Kasisto
Incubation	drive internal education and accelerate idea generation	StartUp Accelerator of Wells Fargo, Barclays Accelerator of Barclays and Incubator of Bank of America
Capital investment	give exclusive access to service launched by fintech	Banks are buying out FinTech companies and repurposing them as their proper subdivisions: Santander Innoventures, Citi Ventures and Wells Fargo Equity Capital.
Industry Consortium	foster cooperation in common challenges present in financial sector	R3 CEV aggregates 40 U.S. banks and focuses itself on search for design and engineering solutions related to blockchain technology
Open competitions	incentivize creative innovations for financial services in form of competition	Citi Challenge of Citi Group and InnovaChallenge of BBVA
Internal Incubation	spin-out new companies to monetizes solution created internally by fintech for bank by launching them to competitors	Synchronoss deal by Goldman Sachs

Figure 3. Engagement models between banks and fintech.

Source: own elaboration based on Rojas, 2016: 36–37 and Gupta and Tham, 2019: 31.

Banks offer many engagement models, which may bespeak about their willingness to perceive fintech more as a support than the source of creative destruction. Such a cooperation between financial institution and fintech delivers benefits for both parties. Financial startups may reshape products and services delivered by banks and help them to operate more efficiently with the use of innovative technologies such as blockchain or cloud computing (KPMG, 2017: 7). This collaboration provides banks with features that fintech has developed better such as innovation, proximity to clients, well developed and defined niches, user-friendly digital system, and mutually a start-up gets an assistance of structured incumbent, with entrusted clients and stable recognition (Riemer et al., 2017: 17–18).

CONCLUSION

The implementation of technology to finance has reinvented the way financial services are perceived. It constituted double-side accommodation to the new system as the financial institutions adapting FinTech solutions make the existing process more efficient and newcomer startup creates a value proposition that has the power to disrupt some segment of the incumbent model (Guptam and Tham, 2019: 4). Lost trust in traditional financial institutions and changes in customer behavior supporting the increasing use of technology have created a formula for success for this new branch of business (Arjunwadkar, 2018: 187).

The analyzed case of modern innovative solutions in finance based on new technologies such as blockchain and cloud computing, which was the main part of considerations carried out in this paper, indicates that there is no clear answer to a question whether FinTech is a step ahead or a force of creative destruction in finance. On the one hand, it serves to streamline many processes, however, on the other hand, financial start-ups may be a source of not only technological but also financial exclusion, or may lead to serious privacy issues as in the case of private blockchain networks. Cloud computing supports and enables the processing of large amounts of data and carrying out many processes, but sometimes lack of precision and financial losses are derivatives in the process of automatization.

There is no unequivocal answer as to the creative or destructive nature of financial start-ups, but given all information they should be considered „as a crucial healthy evolution of financial markets" and disruption of financial institutions can be avoided (Navaretti et al., 2018: 28) if only traditional intermediaries embrace innovative solutions in their strategies, for instance, by engagement in synergies with financial start-ups.

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